ABSTRACT

THESIS: Abundance of pharmaceuticals and personal care products in near-shore habitats of Lake Michigan

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Pharmaceuticals and personal care products (PPCPs) enter aquatic ecosystems through multiple pathways including human excretion into sewage systems, disposal of surplus drugs, and the therapeutic treatment of livestock. Because PPCPs are designed to have a physiological effect, it is likely that they may also influence aquatic organisms. The objectives of this research were to quantify PPCP abundance in near-shore habitats of Lake Michigan and identify factors related to PPCP abundance. Stratified sampling was conducted seasonally at four southern Lake Michigan sites. All sites sampled had measurable PPCP concentrations, but they varied significantly among time and location. Concentrations of PPCPs did not differ with site or water depth. Multiple regression analyses revealed that temperature, total carbon, total dissolved solids, dissolved oxygen, and ammonium controlled total PPCP concentrations. These data indicate PPCPs are ubiquitous in southern Lake Michigan with continued research needed to assess potential effects on aquatic organisms and humans.